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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,309	ABRAHAM ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14,15 and 17-21* is/are rejected.

7)☒ Claim(s) *13 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2, 14-15, 17-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. US Patent Application Publication No. US 2004/0141549 A1 in view of Harrison U.S. Patent 6,324,213 B1.

Regarding claim 1, in column 13, in paragraph [125], Abraham et al. teaches a method of estimating a satellite signal parameter in a satellite positioning system receiver, comprising: generating a plurality of correlation results between a satellite signal and a reference signal in response to a command from a processor, estimating at least one satellite signal parameter from the plurality of correlation results using a co-processor integrated within the satellite positioning system receiver, wherein the at least one satellite signal parameter comprises navigation data bits. In paragraph [0118], Abraham et al. teaches the navigation data bits are detected by the presence or absence of a bit transition. A sign ambiguity may be initially present in the navigation data, which can be resolved by detecting a known preamble sequence in the data.

Abraham et al. does not expressly teach generating an extended preamble as set forth in the application claim.

Harrison discusses a convention navigation (NAV) data stream including continuous sequence of 30-second message frames, organized as a sequence of five 6-second sub-frames. Each sub-frame begins with a synchronization sequence called the telemetry-word preamble (TWP). This is followed by a hand-over word (HOW) that indicates GPS time at the beginning of the next sub-frame, and facilitates the transition from C/A to P code tracking. The HOV corresponds to the claimed extended preamble as set forth in the application claim.

Abraham et al. and Harrison teaches in the same field of endeavor. Because Abraham et al. teaches (in paragraph [0015]) a method of estimating satellite signal parameters by employing correlation history wherein the correlation history mode is used to estimate receiver parameters that can be adjusted to resolve the Doppler frequency error and timing of the navigation data bits for one or more satellites prior to performing the partial correlation processing, therefore, one of ordinary skill in the art at the time the invention was made would have recognized data Abraham et al. teachings not only detecting the known preamble sequence, but also other parameters such as HOW that can be used to resolve the Doppler frequency error and timing of the navigation data bits for one or more satellites.

Abraham further does not expressly disclose the step of comparing the first bit-transitions with second bit-transitions as set forth in the application claim.

As recited above, Abraham teaches the navigation data bits are detected by the presence of a bit transition. A sign ambiguity may be initially present in the navigation data, which can be resolved by detecting a known preamble sequence in the data.

Because the sign ambiguity of navigation data bits can be resolved by detecting a known preamble sequence in the data and Abraham et al. teachings employ a correlation history mode to estimate receiver parameters, therefore, it would have been obvious for one of one of ordinary skill in the art at the time the invention was made to modify Abraham teachings to implement the step of comparing the bit transitions of the navigation bits and the bit transitions of the known preamble.

Regarding claim 2, Abraham teaches the correlation history mode is invoked to determine satellite signal Doppler and/or navigation bit timing in order to estimate certain receiver parameters such as oscillator frequency and receiver clock timing; see paragraph [0089].

Regarding claim 14, referring FIG. 1, in paragraph [0044], Abraham et al. teaches a convolution processor 109 generates results that are stored in signal random access memories (RAMs) 110a and 110b, which hold a complex vector that makes up all or part of the full convolution between the input signal and a reference PN code (e.g. a GPS C/A code). In paragraph [0045], accumulating similar results from individual correlations improves the signal to noise ratio, enhancing the ability of the receiver to detect weak signals. This processing may be referred to as coherent integration. As recited in claim 1 rejection, estimate at least one satellite signal parameter from the plurality of correlation results using a co-processor integrated within the satellite positioning system receiver, wherein the at least one satellite signal parameter

comprises navigation data bits. In paragraph [0118], Abraham et al. teaches the navigation data bits are detected by the presence of a bit transition.

Regarding claim 15, in paragraph [0015], Abraham et al. further teaches to enhance the correlation processing, the correlator uses a correlation history mode. The correlation history mode is used to estimate receiver parameters that can be adjusted to resolve the Doppler frequency error and timing of the navigation data bits for one or more satellites prior to performing the partial correlation processing.

Regarding claim 17, claim is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 18, claim is rejected on the same ground as for claim 2 because of similar scope.

Regarding claim 21, claim is rejected on the same ground as for claim 1 because of similar scope.

2. Claims 3-5, 7-9, 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. US Patent Application Publication No. US 2004/0141549 A1 and Harrison U.S. Patent 6,324,213 B1 as applied to claim 1 above, and further in view of Gaal U.S. Patent 6,775,802 B2.

Regarding claim 3, Abraham et al. does not teach the step of determining a time-of-week value as set forth in the application claim.

Gaal discusses in column 5 lines 60-65, as shown in FIG. 2, each GPS subframe comprises in sequence a string called a telemetry or `TLM` word, a handover word, and eight message words. The handover word (or "HOW") comprises in sequence a seventeen-bit timestamp called a time-of-week (or "TOW") value, two flag bits, a three-bit subframe identification (or `SFID`) code indicating the position of the subframe within the frame, two parity control bits, and the six-bit checksum.

Because determining the handover word (HOV) would automatically determine the TOW, one of ordinary skill in the art at the time the invention was made would have recognized that Abraham et al. teachings would include estimating the TOW in process of estimating a satellite signal parameter in a satellite positioning system receiver.

Regarding claim 4, in column 9 lines 7-20, Gaal discusses one portion of a GPS message that changes at every subframe is the timestamp that appears as the first 17 bits of the HOW (i.e. the TOW value). Reset at midnight Saturday-Sunday, the TOW value indicates the GPS time of the next subframe transition. Each unit in the TOW value indicates a period of six seconds (i.e. one GPS subframe), and the TOW value is incremented by exactly one unit from one subframe to the next. In light of the foregoing, by obtaining the TOW value, the GPS time is included and hence a portion of the expected data bits (e.g. TOW) is formed in response to the GPS time.

Regarding claim 5, as recited in claim 4 rejection, the time-of-the week (TOW) value indicates the GPS time of the next subframe transition. Each unit in the TOW value indicates a period of six seconds (i.e. one GPS subframe). Hence, the TOW bits can be created with the obtained GPS time.

Regarding claim 7, in column 18 lines 45-60, Gaal further suggests the preamble, week number (WIN), TOW, subframe ID (SEID) and CRC are unnecessary to be communicated because they can be easily regenerated at the receiver if a local clock is available.

Regarding claim 8, as recited in claim 4 rejection, Gaal discusses one portion of a GPS message that changes at every subframe is the timestamp that appears as the first 17 bits of the HOW (i.e. the TOW value). Reset at midnight Saturday-Sunday, the TOW value indicates the GPS time of the next subframe transition. Therefore, the time information is computed as part of a navigation solution.

Regarding claim 9, claim limitations are discussed in claim 3 rejection.

Regarding claim 11, Gaal discusses one portion of a GPS message that changes at every subframe is the timestamp that appears as the first 17 bits of the HOW (i.e. the TOW value). Reset at midnight Saturday-Sunday, the TOW value indicates the GPS time of the next subframe transition.

Regarding claim 19, claim is rejected on the same ground as for claim 3 because of similar scope.

3. Claims 6, 10, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. US Patent Application Publication No. US 2004/0141549 A1, Harrison U.S. Patent 6,324,213 B1 and Gaal U.S. Patent 6,775,802 B2 as applied to claim 4 above, and further in view of Heitmann U.S. Patent 7,190,703 B1.

Regarding claim 6, Abraham et al., Harrison and Gaal do not disclose the time estimate is obtained from a server as set forth in the application claim.

Heitmann invention is directed to facilitate the synchronization of base stations in a mobile communication network by using time information server. In column 4 lines 20-30, Heitmann teaches in FIG. 1 a switching device VE is connected to the landline network FN via a landline network interface FNS, and is connected to the local area network LAN via a network interface NS. The switching device VE also has a real-time clock RTC, and also has a GPS (Global Positioning System) receiver GPS for receiving world time information from a satellite SAT. In column 5 lines 20-25, the switching device VE thus carries out the function of a time information server in the local area network LAN.

As disclosed in column 2 lines 20-31, because Heitmann teachings allow base stations to be synchronized with complex communications networks with little effort using time information server, therefore, one of ordinary skill in the art at the time the

invention was made would have been motivated to modify Abraham et al. teachings to obtain time information from a server.

Regarding claim 10, claim is rejected on the same ground as for claim 6 because of similar scope.

Regarding claim 12, *the claimed limitations are part of standard GPS format*, which has been discussed in paragraphs [0003] [0006] of the original disclosure. Hence, the pending claim is not patentable for that reason.

Regarding claim 20, claim is rejected on the same ground as for claim 6 because of similar scope.

Allowable Subject Matter

4. Claims 13 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Volkov et al. U.S. Patent 5,331,329 discloses "Satellite-aided radio navigation positioning method and radio navigation system thereof".

Tanaka U.S. Patent Application Publication No. 2004/0013175 A1 discloses "Method and apparatus for detecting spread spectrum signal spread code synchronizationradio navigation system thereof".

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

Khanh Tran 5/10/07

Khanh Tran
Primary Examiner, AU 2611